



Name: \_\_\_\_\_

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Geometry, Period \_\_\_\_\_

Due Date: Nov 19, 2014

HW59\_ExponentProductQuotient

**Geometry  
Homework**

Form A

Simplify the following:

1)  $r^5 \cdot r^9$  (add exponents when multiplying with same base)

$r^{(5+9)}$

$r^{14}$

2)  $n^{-2} \cdot n^6$

$n^{(-2+6)}$

$n^4$

3)  $v^7 \cdot v^{-5}$

4)  $t^{-4} \cdot t^{-5}$

5)  $d^3 \cdot d^{-5}$

6)  $m^{-3} \cdot m^7$

7)  $9^k \cdot 9^{-8} \cdot 9^{-5}$

8)  $c^{-7}d^{-2}(8cd^{-9})$

9)  $2r^{-8} \cdot r^9$

10)  $6t^5u^{-8}(5t^2u^6)(6t^2u^4)$

11)  $4s \cdot 8s^6$

12)  $9v \cdot 7v^4 \cdot 5v^5$

13)  $(6s^4t)(2st^6)$

$6 \cdot 2 \cdot s^4 \cdot s^1 \cdot t^1 \cdot t^6$

$12 \cdot s^{(4+1)} \cdot t^{(1+6)}$

$12s^5t^7$

14)  $2xy^4z \cdot 5xy^3z$

15)  $4pq^5 \cdot q^4r \cdot 7r^7$

16)  $7bc \cdot 3bc \cdot 6c^{-4}$

17)  $8qr \cdot rs \cdot qs^8$

18)  $(6yz)(2y^2)(4z^2)$

1. Write an expression equivalent to $36x^{12}$	2. Find the missing exponent to make the statement true: $x^4 \cdot x^? = x^7$	3. Find the missing exponent to make the statement true: $x^? \cdot x^{-4} = x^3$	4. Find the missing exponent to make the statement true: $\frac{x^8}{x^?} = x^7$
5. Write three expressions involving quotients that are equivalent to $14^7$	6. Simplify the expression: $\frac{(-12)^9}{(-12)(-12)^5}$	7. Simplify the expression: $\frac{3^4(5^6)}{5^3}$	8. Simplify the expression: $\frac{1}{8^5} \cdot 8^{11}$
10. The luminosity (in watts) of a star is the total amount of energy emitted from the star per unit of time. The order of magnitude of the luminosity of the sun is $10^{26}$ watts. The star Canopus is one of the brightest stars in the sky. The order of magnitude of luminosity of Canopus is $10^{30}$ . How many times more luminous is Canopus than the sun? How much larger is $10^{30}$ than $10^{26}$ ?		11. A microscope has two lenses, the objective lens and the eyepiece, that work together to magnify an object. The total magnification of the microscope is the product of the magnification of the objective lens and the magnification of the eyepiece. <ol style="list-style-type: none"> <li>Your microscope's objective lens magnifies an object <math>10^2</math> times, and the eyepiece magnifies an object 10 times. What is the total magnification of your microscope?</li> <li>You magnify an object that is <math>10^2</math> meters long. How long is the magnified image?</li> </ol>	